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1 CLAIMS:-

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3 1. A screen system for underground wells, the  
4 screen system comprising a screen  
5 wherein the screen comprises a plurality of  
6 slots; and  
7 a mechanism capable of varying the size of the  
8 said slots.

9

10 2. A screen system according to claim 1, wherein  
11 the screen system comprises a pair of screens  
12 comprising a slotted inner screen disposed within a  
13 slotted outer screen.

14

15 3. A screen system according to claim 2, further  
16 comprising at least one external screen shroud.

17

18 4. A screen system according to either of claims 2  
19 or 3, wherein the inner screen is rotatable relative  
20 to the outer screen.

21

22 5. A screen system according to any of claims 2 to  
23 4, wherein the inner screen comprises a  
24 substantially cylindrical member having a pair of  
25 ends wherein one end is rotatable relative to the  
26 other end by operation of the said mechanism.

27

28 6. A screen system according to any preceding  
29 claim, wherein the mechanism comprises a motorised  
30 actuator.

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1 7. A screen system according to claim 2 or to any  
2 of claims 3 to 6 when dependent upon claim 2,  
3 wherein at least one of the inner and outer screens  
4 comprises a plurality of longitudinally arranged  
5 members and at least one transversely arranged  
6 member which combine to provide the slots in the  
7 interstices therebetween.

8

9 8. A screen system according to claim 7, wherein  
10 rotation of one end of the said at least one screen  
11 causes an end of the longitudinally arranged members  
12 to rotate relative to the other end of the  
13 longitudinally arranged members such that the slot  
14 size is capable of being varied.

15

16 9. A screen system according to any preceding  
17 claim, wherein at least one screen or screen shroud  
18 is provided with electromechanical sensors.

19

20 10. A screen system according to claim 9 when  
21 dependent upon claim 8, wherein the inner screen is  
22 rotated under the control of a controller which is  
23 further connected to the electromechanical sensors.

24

25 11. A screen system according to claim 10, wherein  
26 the controller employs a solids prediction model to  
27 calculate a control action.

28

29 12. A screen system according to either of claims  
30 10 or 11, wherein the controller further employs a  
31 plugging tendency model to calculate a control  
32 action.

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2 13. A screen system according to claim 3 or to any  
3 of claims 4 to 12 when dependent upon claim 3,  
4 wherein the external screen shroud is attachable to  
5 the outer screen.

6

7 14. A screen system according to claim 13, wherein  
8 the external screen shroud is perforated.

9

10 15. A method of fluid flow control and/or sand  
11 production control in a well, the method comprising  
12 the steps of placing a screen having a plurality of  
13 slots in the well and varying the size of the slots.

14

15 16. A method according to claim 15, wherein a  
16 mechanism is provided to vary the size of the said  
17 slots.

18

19 17. A method according to claim 16, wherein the  
20 mechanism is capable of rotating a first portion of  
21 the screen relative to a second portion of the  
22 screen to vary the size of the said slots.

23

24 18. A method according to any of claims 15 to 17  
25 wherein a controller controls the actuation of the  
26 rotation mechanism.

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28 19. A method according to claim 18, wherein the  
29 controller is provided with data inputs from one or  
30 more sensors provided downhole.

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1 20. A method according to claim 19, wherein the  
2 sensors are mounted on one or more portions of the  
3 screen system.  
4

5 21. A method according to either of claims 19 or  
6 20, wherein the sensors are electro-mechanical  
7 sensors.  
8

9 22. A method according to any of claims 18 to 21,  
10 wherein the controller employs a solids prediction  
11 model to calculate a control action.  
12

13 23. A method according to claim 22, wherein the  
14 controller further employs a plugging tendency model  
15 to calculate a control action.

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